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UNICA: Challenges to Deliver Sustainability in the Brazilian Sugarcane Industry[1]

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Abstract

After a successful career at the University of São Paulo, Marcos Jank became the President and CEO of the Brazilian Sugarcane Industry Association (UNICA) in July 2007. He was hired with a mandate to establish ethanol as a global commodity and to open new markets for the industry's sugar, ethanol and bioelectricity output. But he faced complex challenges. The main challenge related to the role of UNICA in leading industry-wide sustainability initiatives. This required coordination of 70,000 sugarcane producers and 430 processors; engagement with outside stakeholders in Brazil and abroad; and implementing programs that balanced economic, social and environmental outcomes. A second set of challenges emanated from the rapid growth and dramatic structural changes occurring in the industry. This case study describes UNICA's unique approach to sustainability and how it is changing the industry, allowing the reader to analyze the effectiveness of this approach in delivering sustainability.

Keywords: sustainability, biofuels, ethanol, industry association.

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IFAMA Agribusiness Case 13.4B

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Introduction

After attending the COP15 climate change summit in December 2009, Marcos Jank was finally able to relax on a flight back home from Copenhagen to São Paulo. He sipped a glass of wine and pondered about the future of the Brazilian sugarcane industry. After a successful career as a professor of agribusiness management at the University of São Paulo and the executive director of ICONE, a think tank, Marcos became the President and CEO of the Brazilian Sugarcane Industry Association (UNICA) in July 2007. He was hired with the mandate to establish ethanol as a global commodity and to open new markets for the industry's sugar, ethanol and bioelectricity output. To accomplish these goals, he designed a three-pronged strategy based on industry competitiveness, sustainability and communication. His vision for UNICA was "to build a sustainable bioenergy network, support public policies that make sense, and correct the vast disinformation that still exists regarding our industry."

Few sectors spark as much interest, as the Brazilian sugarcane industry. In 2009, for example, UNICA received 162 delegations from 83 countries that were interested in the Brazilian experience with ethanol and bioelectricity. In addition, UNICA received more than 30 requests for information from journalists – every day. This interest resulted from Brazil's unique experience with renewable energy. The sugarcane industry was the country's second leading energy source with an estimated 18% of the national energy mix in 2009 (Exhibit 1). Ethanol was available in practically all service stations across the country and virtually all new cars sold in Brazil were flex fuel. In March 2008 ethanol consumption in Brazil surpassed gasoline use (Exhibit 2). Brazil was the only country in the world where the alternative fuel was fossil and the main source of fuel was renewable. UNICA estimated that the use of sugarcane ethanol had generated a reduction of about 600 million tons in CO_2 emission since 1975.

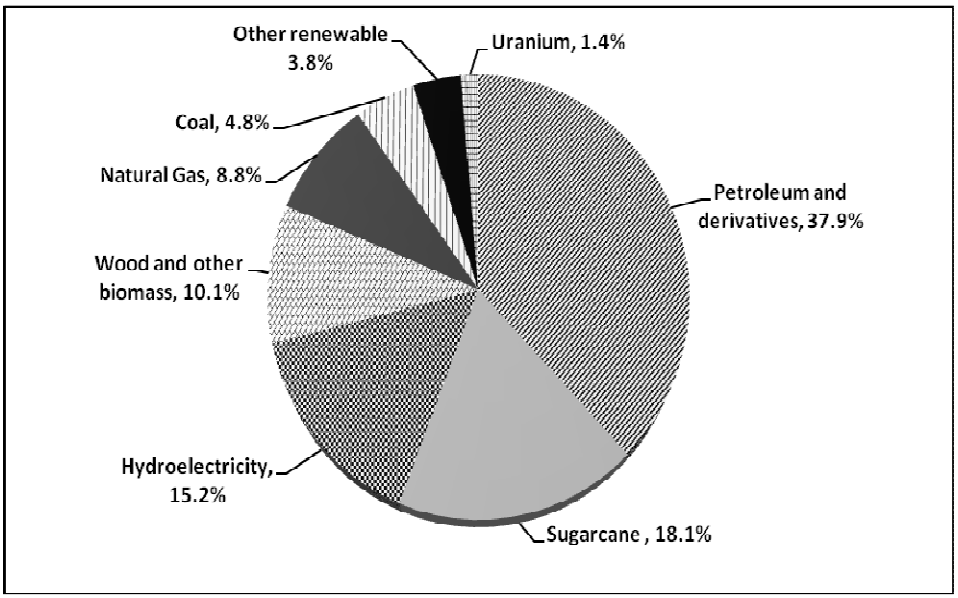


Exhibit 1. Brazilian Energy Balance (2009) in 103 TOE (Tons of Oil Equivalent)
Source: Brazilian Ministry of Energy and Mining.

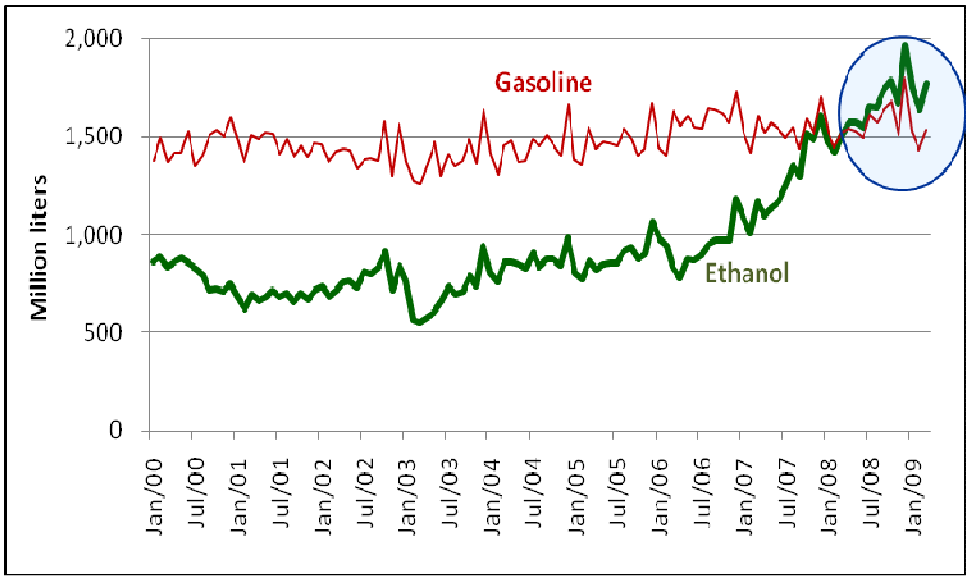


Exhibit 2. Ethanol and Gasoline Consumption in Brazil (million liters)
Sources: ANP (National Oil and Fuels Agency) and UNICA.

Despite these achievements, the Brazilian sugarcane industry was the target of considerable criticisms and "bad press." These criticisms were related to perceived negative externalities of sugarcane production including the food-versus-fuel debate, land use changes, deforestation of natural habitats, air pollution due to sugarcane burning and workers well being. For example, the Brazilian Environment Ministry stated that sugarcane was "a deforestation vector" in the Cerrado region. The leading Brazilian weekly newsmagazine *Veja* identified sugar as the main culprit of a "global obesity epidemic" in a cover story. One of the largest Brazilian producers of sugar and ethanol was accused of buying sugarcane from a supplier that used "slave labor." In addition to such domestic criticisms, the industry was under considerable pressure from NGOs, civil society organizations, trade groups, and governments outside Brazil. "As the sugarcane industry evolved, diversified its output from sugar to ethanol and bioelectricity, and became increasingly global, the game became tougher," explained Marcos.

Given this backdrop, Marcos faced a complex set of challenges. The first challenge was related to the role of UNICA in coordinating the sustainability agenda in an industry-wide effort. More specifically, Marcos wanted to better understand the tradeoffs of the strategy pursued by UNICA to deliver sustainability and also the limitations of an industry association in gaining legitimacy from society at large. UNICA's approach was to proactively engage with domestic and foreign governments to shape the regulatory environment; to collaborate with NGOs and civil society organizations in multi stakeholder initiatives aiming to develop certifications for sustainable products; and translating the complex sustainability debate to industry participants. In doing so, UNICA attempted to close the gap between industry practices and stakeholder demands and also to gain legitimacy with society at large.

A second set of challenges emanated from the rapid growth and structural changes occurring in the industry, including geographic expansion, consolidation, vertical integration, innovative business models, and entry of new players. Should Marcos attempt to redesign the current

governance structure and strategy of UNICA so as to remain a viable organization? As the lights in the airplane cabin were dimmed and Marcos got ready to rest, he wondered if UNICA's efforts were effective in helping the organization come close to fulfilling his vision.

An Overview of the Brazilian Sugarcane Industry

Sugarcane was an integral part of Brazil's social, political and economic history. One of the first decisions Portuguese conquerors made after landing in the southern coast of Bahia in 1500 was to introduce sugarcane brought from India and East Asia. Sugarcane producers were given very large tracts of land by the Portuguese crown and used slave labor to produce sugar – the country's first export crop. Sugar was produced in large, vertically integrated plantations. For several decades, it was the country's most important economic activity.

It was not until the 1970s that the sugarcane industry started to become less dependent on sugar exports, when it received massive investments in science and technology both from private and public sources. These investments led to impressive productivity gains at the farm production and processing levels, which translated to lower fuel prices paid by consumers (Exhibit 3). As a result, production of ethanol per hectare of sugarcane increased from 3,000 liters in the early 1970s to 7,000 liters in 2009. The industry started to convert sugarcane into a diverse range of value-added products including ethanol, bioelectricity and bioplastics.

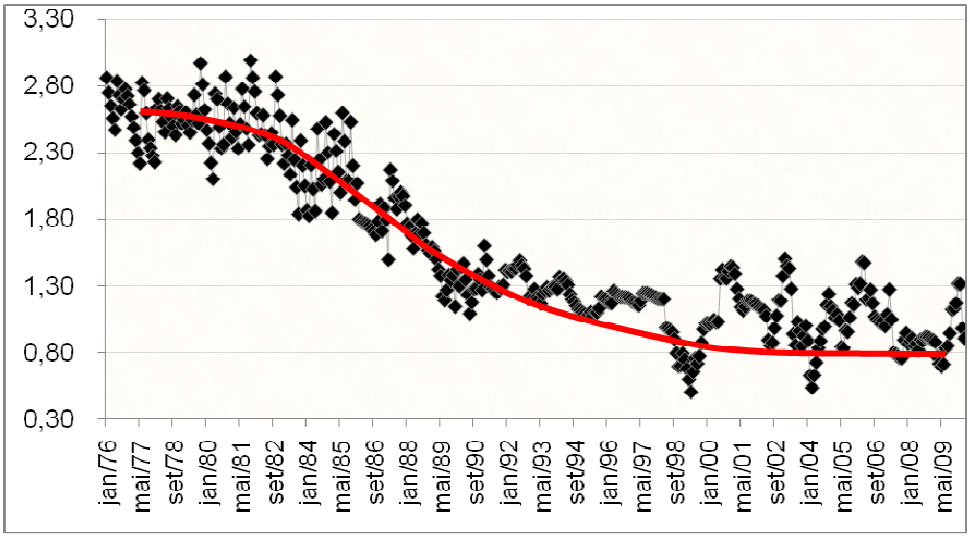


Exhibit 3. Prices Received for Anhydrous Ethanol by Sugarcane Processors (in R$/Liter)
Note: Prices were deflated by the IGP-DI index (base is April 2010). As a result of efficiency gains, the inflation-adjusted price currently received by ethanol processors is about 1/3 of the price received in the beginning of the *Proalcool* in the 1970s.
Source: UNICA.

The first defining moment in this process happened in the mid-1970s when the Brazilian government enacted the National Alcohol Program – known as *ProAlcool* – to reduce the country's dependence on foreign oil. The major pillars of *ProAlcool* included investment incentives for the construction of ethanol distilleries attached to existing sugar mills; a 5% mandatory ethanol blend (E-5) in all gasoline sold in the country, which was gradually increased

to the current level of 25% (E-25); and incentives to the production of pure ethanol powered vehicles (E-100).

The industry was heavily regulated until the beginning of the 1990s. Federal law 4870 enacted under a military dictatorship in 1965 defined the "rules of the game" from sugarcane fields to sugar and ethanol production, distribution and exports. Prices were set at each stage along the value chain and each mill and distillery was allocated production and export quotas. The Sugar and Ethanol Institute (IAA) was the federal agency in charge of regulating the industry. This institutional setting tied the hands of the private sector and restricted entrepreneurial activity. As a result, the industry mindset was production driven. Industry participants also engaged in lobbying activities as profit margins and industry growth were decided at the corridors of the IAA in Brasilia.

Democracy was restored in the late 1980s and a new Constitution was enacted that significantly altered the role of the state in the economy. Starting in the early 1990s the economy was liberalized, Brazil joined the Mercosur trade block and the Real Plan was adopted to control inflation. The sugarcane industry embarked on a gradual process of deregulation starting with the extinction of the IAA in 1990. A new law in 1994 discontinued all price and quantity controls and also liberalized sugar exports. In 1997 the ethanol domestic price control was extinguished. During this transition period, industry participants became increasingly driven by competitiveness and profitability. But still the overwhelming majority of sugar mills and ethanol distilleries were family-owned firms.

Another turning point that shaped the Brazilian sugarcane industry was the introduction of flex-fuel vehicles (FFVs) in 2003. FFV technology allowed consumers to fuel their cars with gasoline, ethanol or any mixture of both. That is, fuel choice could be made at fueling stations reducing risks for car owners and allowing the market to self regulate based on relative prices of each fuel. FFV technology has been very popular among consumers and over 90% of all new light vehicles sold in Brazil in 2009 were FFVs. Thirteen automakers – including major U.S., European and Asian firms – manufactured more than 80 flex-fuel car models. The FFV fleet reached 10 million vehicles in early 2010 or approximately 42% of the light vehicle fleet in the country, which was expected to surpass 50% by 2011. Domestic ethanol demand increased in a similar pace to FFV sales with ethanol use surpassing total gasoline demand in 2008 (Exhibit 2). Ethanol use included anhydrous ethanol blended in gasoline (E-25) and hydrous ethanol (E-100). According to UNICA estimates, the use of sugarcane ethanol in flex-fuel cars since 2003 had decreased CO_2 emissions by 83 million metric tons.

A more recent breakthrough was the 2007 Energy Independence and Security Act that significantly increased the mandate for renewable fuel use in the U.S. The Renewable Fuel Standard (RFS) legislation determined an ambitious target of 136 billion liters of renewable fuels by 2022. Other countries followed the U.S. initiative to create a market for renewable fuels including the EU Renewable Energy Directive (Exhibit 4). Although the global market for ethanol was still very small due to tariffs and import restrictions, these mandates for renewable fuel use represented growth opportunities for the industry.

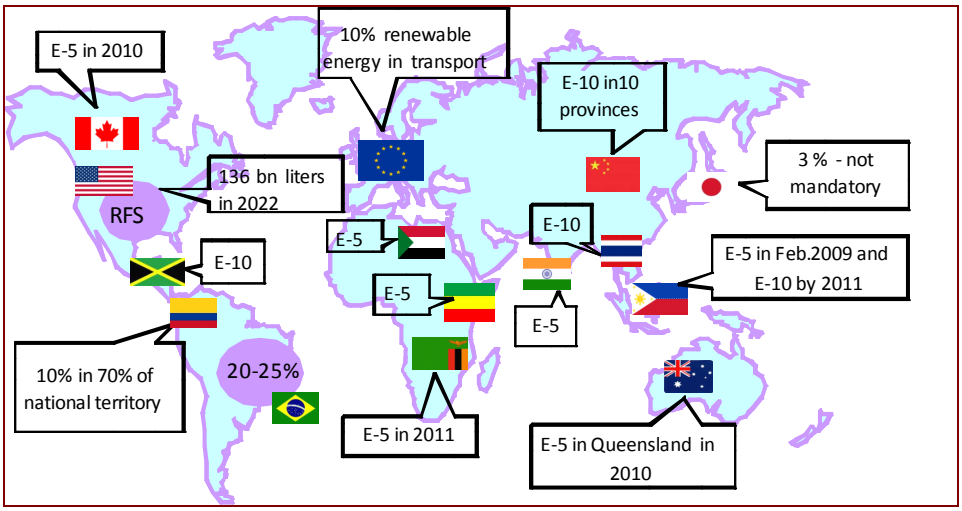


Exhibit 4. Mandates for Renewable Fuel and Energy across the Globe
Sources: Lindsay Jolly, Future Trends in World Food Security; WSRO Annual Meeting 2008; F.O. Licht and LMC International.

As a result, the industry entered a new phase of rapid growth and structural change in the mid-2000s. Sugar and ethanol processors engaged in joint ventures to make the necessary investments in logistics infrastructure and thereby take advantage of scale economies in distribution, exports and risk management. The industry started a consolidation process with several mergers and acquisitions. According to KPMG Corporate Finance, 99 M&A transactions involving sugarcane processors occurred between 2000 and 2009. Family-owned processors began to hire professional managers and adopt corporate governance best practices. Some domestic firms converted to publicly traded corporations to access outside sources of capital with IPOs in Brazil and New York. Copersucar – a cooperative owned by 36 processors in São Paulo – adopted a hybrid ownership model allowing the introduction of outside equity. Since 2006, 115 new, greenfield mills and distilleries were built across the country in non-traditional areas in São Paulo and adjoining states. Foreign players – including Tereos, Dreyfus, Bunge, ADM, Noble Group, Adecoagro and Shree Renuka Sugars Ltd. – and oil companies Shell, BP and Petrobras entered the industry buying existing plants and building new ones. Industry sources estimated that multinational players controlled about 25% of the industry capacity in early 2010. As a result of this structural change process, the industry became more heterogeneous and more geographically dispersed.

Economic, Environmental and Social Impacts

The Brazilian sugarcane industry was comprised of about 70,000 sugarcane producers, 430 processing units (sugarcane mills and distilleries) controlled by 160 groups, and 1.2 million workers. Sugarcane production in Brazil was spread out in 8.1 million hectares – equivalent to 2.5% of the country's arable land. The land area used to produce ethanol was about 4.9 million hectares, which was sufficient to displace more than 50% of the country's gasoline needs and export. UNICA estimated that ethanol production could triple if 2% of existing degraded pastures were replaced with sugarcane fields. The Brazilian government introduced an agro-ecological zoning policy in 2009 to delimit areas where sugarcane (and other crops) could be

produced. According to this zoning rule, the permitted land area to grow sugarcane could not exceed 64.7 million hectares or about 7.5% of the Brazilian territory. This law prohibited agricultural production in sensitive biomes such as rainforests and wetlands. It also limited agricultural expansion into native vegetations including the Cerrado.

Sugarcane production was clustered around two main regions (Exhibit 5): along the northeastern coast (2,000 km to the east of the Amazon rainforest) and in southeastern states around São Paulo (2,500 km to the south of the Amazon rainforest). Although the industry was first established in northeastern Brazil, the region represented less than 10% of total industry output with the remaining 90% produced in the southeast. In addition to dispersion in geography and industry structure, the industry was also characterized by heterogeneous ownership structures, including multinational firms, publicly listed corporations, cooperatives and many smaller, family-owned processors (Exhibit 6).

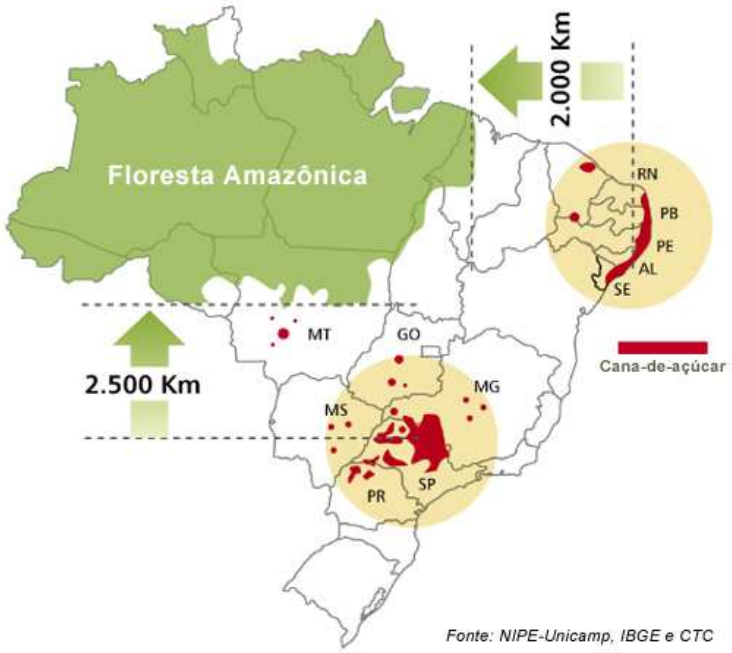


Exhibit 5. Geographic Footprint of the Sugarcane Industry in Brazil

The industry output was impressive: 542 million metric tons of sugarcane was used as raw material to produce 29 MMT of sugar (equivalent to 20% of world production and 45% of world exports), 25 billion liters of ethanol (30% of world production and 60% of world exports) and bioelectricity (Exhibit 7). Ethanol production alone created 465,000 direct jobs, which was six times larger than the oil industry in Brazil. Ethanol production was present in 1,042 municipalities across the country, compared to only 176 for oil. This economic activity translated into more income distribution and community development in rural areas. University of São Paulo (USP) scholars estimated that a 15% nationwide gasoline substitution with ethanol created 118,000 new jobs and generated U.S. $140 million in additional wages annually.

	Processed Sugarcane (2009/2010)	Ownership Structure
COPERSUCAR	68,322,123	Cooperative
COSAN	52,781,685	Publicly-traded corporation
LDC (DREYFUS)	19,388,223	Multinational
TEREOS	13,652,029	Multinational
SÃO MARTINHO	12,923,436	Publicly-traded corporation
BUNGE	9,285,292	Multinational
SÃO JOÃO ARARAS	7,371,057	Family owned
CERRADINHO	6,588,721	Family owned
EQUIPAV / Shree Renuka Sugar Ltd.*	6,582,275	Multinational
COLOMBO	6,518,941	Family owned
BAZAN	6,110,957	Family owned
GRUPO TONIELLO	4,728,588	Family owned
LUIZ CERA OMETTO	3,606,616	Family owned
ETH ODEBRECHT	2,832,469	Publicly-traded corporation
Other 28 firms	53,580,386	--------
TOTAL	**274,272,798**	--------

Exhibit 6. Size and Ownership Structure of Largest Sugarcane Processors in Brazil
Note: this list only includes processors that are members of UNICA.
* Transaction announced February 2010.
Source: UNICA

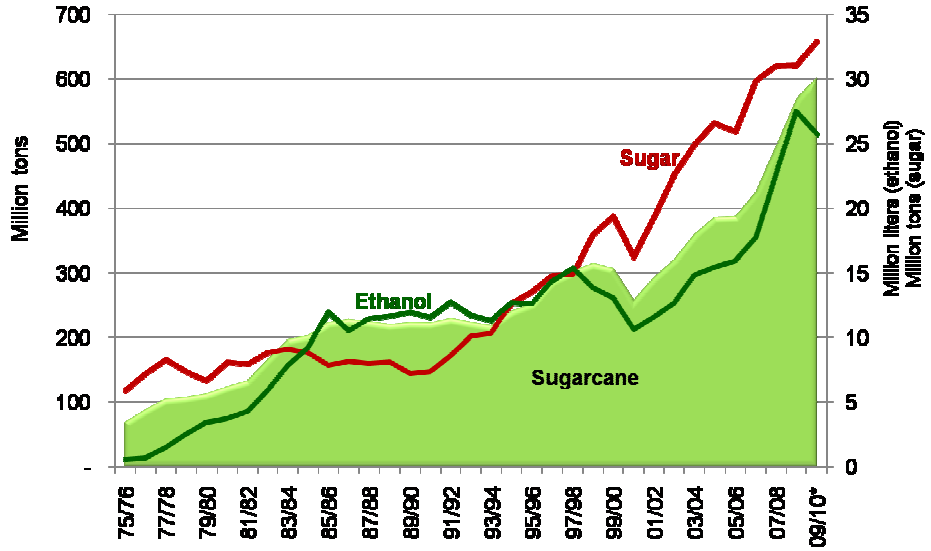


Exhibit 7. Sugarcane Industry Output Growth
Source: UNICA

The increased use of sugarcane ethanol as a renewable fuel in Brazil had considerable impacts on the reduction of GHG emissions in the transportation sector. An assessment by the International Energy Agency (IEA) suggested that sugarcane ethanol could deliver a verifiable reduction in

GHG emissions of 90%, depending on adopted production techniques, when compared to gasoline (Exhibit 10). As part of the RFS legislation, the U.S. Environmental Protection Agency (EPA) labeled sugarcane ethanol as an "advanced" biofuel as it reduced GHG emissions by 61% compared to gasoline, considering direct and indirect land use changes. In economic terms, specialists concluded that for every liter of ethanol use Brazil saved U.S. $ 20 cents in carbon mitigation costs. Air quality researchers at the University of São Paulo School of Medicine estimated that if every car in the São Paulo metropolitan region were fueled exclusively with gasoline, the city would face annually more than 400 additional deaths, 25,000 hospitalizations and an increase of U.S. $80 million in healthcare expenses.

All sugarcane mills and distilleries in Brazil were self-sufficient in electricity. Processing plants used sugarcane bagasse – the cellulosic residues left after sugarcane is crushed – to generate vapor and produce bioelectricity for self-consumption. The excess of this clean energy not used in the plants was sold to distribution grids thereby substituting other forms of carbon-intensive electricity such as fossil thermoelectric plants. Sugarcane mills generated the equivalent of 3% of the installed Brazilian electrical capacity in 2009. With the increased adoption of mechanized harvesting, part of the sugarcane biomass that was left on the fields would also be used to generate additional bioelectricity. The sugarcane bioelectricity share was expected to increase to 15% of total electricity capacity in 2020. Another benefit of sugarcane bioelectricity was its synergy with hydropower. Sugarcane was harvested and processed during the dry season, when hydropower dams experienced a reduction in electricity generation. This greatly increased the stability and reliability of the national grid.

Despite these benefits, the industry was under pressure from criticisms in Brazil and also from stakeholders outside the country. Consequently, future industry growth had to be closely linked with responsible production and consumption practices. As the largest industry association, UNICA played a key leadership role in coordinating industry participants to achieve this goal.

The Brazilian Sugarcane Industry Association (UNICA)

The history of UNICA started in 1932 with the formation of the Sugarcane Millers Association (*Associação dos Usineiros*) by processors in the state of São Paulo. Between 1932 and 1990, the Association office was housed at the Copersucar headquarters together with the sugar and ethanol processors' unions. The presidents of processors – the majority of which were family-owned firms – took turns in managing the association. With the enactment of *ProAlcool* in the 1970s many processors decided to leave Copersucar and form competing industry associations. It was only in 1997 that UNICA was formed as a union of these rival associations.

In 2009 UNICA represented about 50% of the total processed sugarcane in the country. Processors in northeastern states had their own industry associations and some processors in the southeastern region were not members of UNICA. Although the northeastern states were responsible for less than 10% of total sugarcane production in the 2009-10 crop season, they still had considerable political influence. "They have always been better organized politically than us," explained Antonio de Padua, the Technical Director of UNICA.

In 2000 UNICA members decided to hire Eduardo Pereira de Carvalho as its first professional President and CEO. With extensive industry experience, Mr. Padua was hired as the Technical Director to assist Eduardo. The board of directors maintained responsibility for setting the policies and providing strategic direction, but execution was delegated to a professional staff with considerable autonomy. Eduardo changed the organizational structure of UNICA and introduced objectives, goals and performance measures for the management staff. Eduardo led UNICA until 2007 with a focus on increasing industry competitiveness in a deregulated market environment. His major accomplishments were to consolidate UNICA as the unified industry voice and to introduce professional management to UNICA, which was rare among industry associations in Brazil.

By the late 2000s the industry dynamics had changed again especially after the U.S. introduced the renewable fuels mandate. But the Brazilian sugarcane industry started to become the target of attacks and accusations. Opponents argued that sugarcane ethanol was a cost effective alternative to gasoline but it destroyed native forests, it employed slave labor and it was responsible for escalating food prices (Exhibit 8, see Appendix 1). The industry was not ready to face these criticisms and adopted a distant, passive approach as it had done for several decades. This started to change in July 2007 when Marcos was hired to develop a sustainability agenda, to better communicate with outside stakeholders and to consolidate ethanol as a globally traded commodity.

Governance and Organizational Structure

UNICA members were 41 processors located in São Paulo and adjoining states. Membership was voluntary and open but applications of new members had to be approved by the board of directors. These 41 members owned 123 processing plants that crushed 274 million tons or about 50% of the Brazilian sugarcane crop. Membership fees and voting rights in the association were set in proportion to sugarcane crushing volume. As a result, the largest processors contributed more to UNICA's budget but also controlled more board seats. The two largest processors represented 44% of total sugarcane volume and the five largest groups 60% (see Exhibit 6).

The UNICA governance structure was based on a three-tiered model: the Board, three committees and the executive team (Exhibit 9). The board of directors was responsible for making decisions and setting policy. It was comprised of 24 elected seats in addition to the President-CEO. Each director was elected for a three-year term with no term limits. Board meetings occurred every Tuesday afternoon at the UNICA office in São Paulo. The last board meeting of each month, when UNICA staff briefed members about current affairs, was plenary and opened to all members. "These monthly meetings are very important to our members as it is also an opportunity for them to interact socially. Our association has the culture of a club," believed Eduardo Leão de Sousa, the Executive Director and Board Secretary.

The governance structure of UNICA also included a Fiscal Board and three technical committees. The Fiscal Board – formed by five elected members – met on a quarterly basis to perform the internal audit function. The three permanent committees were charged with developing the strategic agenda set by the Board. Each committee was formed by eight board directors with the support from professional staff. They met monthly to provide strategic

leadership related to their assigned areas of responsibility – competitiveness, sustainability and representation. Each committee was charged with developing specific policy proposals regarding key issues and also an action plan that formed the basis for UNICA's annual strategic plan and budget. A General Assembly of members occurred once a year to approve financial statements and the budget and to conduct the election of Board directors.

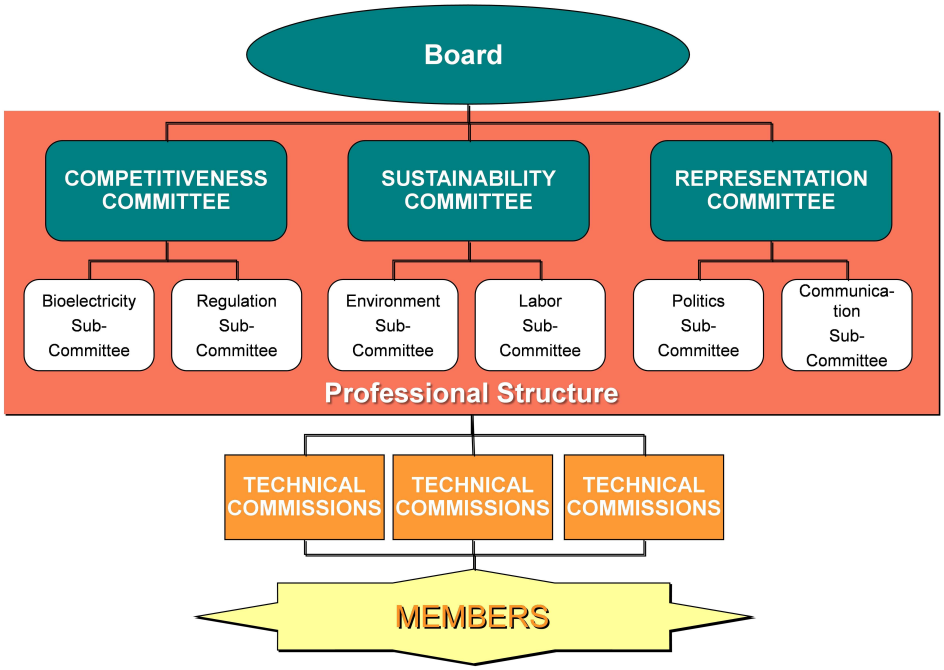


Exhibit 9. UNICA Governance Structure

The execution of the strategic and action plans laid out by the Board and its committees was the responsibility of the professional staff. UNICA's current organizational structure, implemented by Marcos in 2007, included the President-CEO and three Directorships – Executive, Technical and Communications. The CEO and the three directors formed the Executive Committee. The staff included full-time employees, executives and specialists – in addition to consultants hired on a project basis – bringing a diverse set of skills and experience to UNICA. The professional team was also in charge of coordinating several technical commissions. These commissions were formed on a non-permanent basis to discuss issues of importance to the industry with the participation of members, non-members and industry specialists. The goal was to ensure an efficient operation in tune with the Board and to foster member involvement and participation.

UNICA's Sustainability Efforts

Since 2007 the UNICA team had been working on several international and domestic fronts to introduce industry-wide sustainability efforts. These efforts included engagements with foreign governments, multistakeholder initiatives, NGOs, labor unions and with several federal and state agencies in Brazil.

International policy, regulatory and certification initiatives

Geraldine Kutas provided leadership to UNICA in international affairs. She reported directly to Marcos given the centrality of international issues to UNICA's objective of consolidating ethanol as a globally traded commodity. Geraldine led a team that engaged with international stakeholders on several fronts.

First, UNICA interacted with foreign government officials and legislators to influence the development of policies and regulations concerning renewable sources of energy such as the Renewable Fuel Standard (RFS) and California's Low Carbon Fuel Standard (LCFS) in the U.S. and the EU Renewable Energy Directive. These policy processes were critical to the industry as they had the potential to open or close markets for sugarcane ethanol. UNICA believed that scientific evidence should play an important role in informing the policy making process. Building on Marcos' experience and network in academia, UNICA coordinated the development and communication of technical papers about the Brazilian sugarcane industry. Since the 1970s, Brazilian scientists had developed an extensive body of literature about biofuels, which was not readily accessible to their peers abroad – as they were published in Portuguese. UNICA provided support for these scientists to publish in English and also to participate in international conferences. In addition to coordinating the efforts of the scientific community in Brazil, UNICA also established foreign offices in Washington, D.C. and Brussels to coordinate more closely its lobbying efforts and influence the policy debate in a timely fashion.

Second, UNICA participated in discussion groups involving multilateral organizations, NGOs and foreign governments. An example was the Global Bioenergy Partnership (GBEP), an inter-governmental forum bringing together governments, inter-governmental agencies (like the FAO and UNEP) and the UN Foundation (an NGO) in a joint commitment to promote bioenergy for sustainable development. UNICA only participated in GBEP as an advisor to the Brazilian government. GBEP focused its activities in three strategic areas: sustainable development, climate change, and food and energy security. UNICA also helped establish the Sugarcane Discussion Group (GDC) to foster sustainable development practices in Brazil. These discussion groups identified and debated relevant issues but did not have clearly defined goals.

Third, UNICA represented sugarcane producers in relevant roundtables including the Roundtable of Sustainable Biofuels (RSB) and the Better Sugarcane Initiative (BSI). These multistakeholder initiatives (MSIs) were governing systems intended to regulate business behavior and promote sustainable business practices with the development of certification processes. Ideally they were formed by a broad range of participants such as NGOs, civil society organizations, trade unions and multinational corporations. However, the intricacy and divergent interest nature of MSIs had given rise to questions about their efficacy and continuance.

UNICA decided to participate in these MSIs to represent the interests of producers from a "south" or developing country perspective. Geraldine argued that the main challenge in these roundtables was to close the gap between the "sustainability demands of consumers, processors and retailers in the developed world and the realities faced by commodity producers in developing countries. In addition, nobody wants to bear the increased costs associated with sustainability certification of a commodity – such as sugar and ethanol – and the producer always

ends up bearing these costs." Despite these challenges, she believed MSIs were very important to open direct channels of communication and build trust between participants.

Certification Initiatives in Brazil

Eduardo Leão de Sousa was in charge of the "domestic front" – including all initiatives with Brazilian government officials, policy makers, consumers, labor unions and NGOs leading to certification of sustainable practices. He was also responsible for the team headquartered in the Ribeirão Preto office – at the heart of the sugarcane country – that engaged directly with industry participants. Eduardo believed that achieving sustainability should involve "a two-way communication process as information must flow upstream to sugarcane producers and they must be ready to respond to the demands of customers and end consumers." Examples of certification of sustainable practices involving the sugarcane industry included the Green Protocol, the National Labor Commitment and the RenovAction program.

The Green Protocol

In June 2007 the São Paulo Governor and Secretaries of Agriculture and the Environment signed with UNICA the Agro-Environmental Protocol – also known as the Green Protocol – to promote sustainable environmental practices in sugarcane production and processing in the state. The protocol established a series of guidelines to be voluntarily followed by processors seeking eligibility for the Certificate of Environmental Compliance. These guidelines comprised practices related to soil and water resource conservation, riverside forest protection, greenhouse gas emission reduction and responsible agro-chemical use, among others (Exhibit 10, see Appendix 2).

Despite the breadth of the protocol, the most important directive was the more rapid introduction of sugarcane harvest mechanization in substitution for the traditional practice of sugarcane burning that allowed cutters to manually harvest the fields. Prior state legislation required sugarcane burning to be eliminated by 2021 in areas where mechanization was possible and by 2031 in areas where mechanization was not feasible due to land steepness. Under Green Protocol directives, these deadlines were anticipated to 2014 and 2017 respectively. According to UNICA estimates, accelerating the harvest mechanization process would reduce CO_2 emissions from sugarcane straw burning by 8.2 million tons by 2017. Furthermore, the protocol required all new sugarcane plantations in the state to be developed in fields where mechanization was possible.

According to UNICA statistics, 160 sugarcane mills had voluntarily adopted the protocol since 2007 representing 85% of the total number of processing plants in the state. Additionally, approximately 54% of the cane harvested area had already been mechanized by the 2009-10 crop year (Exhibit 11, see Appendix 3). The Green Protocol had become an important instrument to evaluate the environmental performance of the sugarcane industry. Also, it had fostered research in new technology development such as bioelectricity production from sugarcane straw and the adaptation of mechanical harvesting processes for small- and medium-sized sugarcane producers.

The National Labor Commitment

In June 2009 the National Commitment for the Improvement of Labor Conditions in Sugarcane Production was launched by the Brazilian federal government, UNICA, the Federation of Rural Workers in the State of São Paulo (FERAESP), the National Confederation of Workers in Agriculture (CONTAG) and the National Sugar-Energy Forum. The main purpose of the National Labor Commitment (NLC) was to encourage and recognize best labor practices in the sugarcane industry. Also, it was intended to promote education, training and placement of workers whose jobs were at risk due to sugarcane harvest mechanization. The Brazilian sugarcane industry employed approximately 1.2 million workers in both the farm production and processing sectors in 20 states. Although the industry had made significant progress in improving work conditions, labor related issues still persisted even among some large processors.

Processors that voluntarily committed to the program seeking to receive the Conformity Certificate had to follow 30 guidelines set forth by the terms of the agreement. These guidelines included labor best practices that were stricter than the legal obligations of federal labor laws. They addressed issues related to safety, health, and general working and hiring conditions of workers engaged in manual operations in sugarcane fields. Furthermore, under the NLC the federal government was responsible for implementing public policies for worker education, requalification and job placement to mitigate unemployment caused by increased mechanization. According to UNICA, more than 300 processors representing approximately 75% of total industry output embraced the NLC in its first day of operation.

The RenovAction Project

RenovAction was a training program created by UNICA in partnership with the Federation of Rural Workers of the State of São Paulo (FERAESP). The project also received financial support from the Inter-American Development Bank (IDB), Syngenta, John Deere and Case IH. The initiative was launched in 2009 as a response to the fast mechanization of sugarcane planting and harvesting triggered by growing environmental and social concerns. The phasing-out of pre-harvest burning and manual harvest suggested that a great number of workers employed as sugarcane cutters would eventually lose their jobs. The industry estimated that every mechanical harvester would replace up to 80 cane cutters while creating 18 higher-paid jobs that required training. As a result, 75% of the 150,000 cane cutters employed in the state had their jobs at risk. The other 25% would have to be retrained to perform other functions in the sugarcane industry. It was within this context that the RenovAction program would operate.

The objective of the RenovAction program was to train every year 7,000 workers from local communities in six sugarcane production areas in the state of São Paulo. The training program was divided into two major components: courses to reposition cane cutters within the sugarcane industry (e.g., as mechanical harvester operators, mechanics, truck drivers, electricians, etc.) and courses to reposition displaced cane cutters in other sectors of the local economy (e.g., construction, pulp and paper mills, and horticulture). Course development was “demand driven” as offerings would target local opportunities and specific labor demands in each affected community.

The RenovAction program received funding from sugarcane processors and also from industry participants Syngenta, John Deere and Case. All 41 processor groups associated to UNICA – representing 123 mills – voluntarily joined the program. A committee – formed by two UNICA representatives, two labor union (FERAESP) representatives and one representative from each industry donor – was responsible for the strategic use of funding, course development approval, and project evaluation and monitoring. According to Eduardo, the success of this program rested on the engagement and effective coordination of all participants involved in the sugarcane supply chain.

Corporate Social Responsibility Efforts

In addition to providing industry leadership and representing members in the negotiation and development of certification processes, UNICA coordinated the development of corporate social responsibility (CSR) efforts at the processor level. Since it had signed agreements such as the Green Protocol and the NLC, UNICA needed to bring its members along to be able to deliver on its commitments. Because the adoption of sustainable practices by sugarcane processors was voluntary, UNICA staff debated the incentives of industry participants to follow their leadership and deliver sustainability.

Interacting directly with owners and managers of member processing plants was the responsibility of Maria Luiza Barbosa and Daniel Lobo. According to Iza Barbosa, "the main challenge of our job is that we don't see results every day. When we first enter a processing plant we need to earn the trust of owners and plant managers. Then we have to help them understand the necessity and urgency of the CSR agenda. When I joined UNICA ten years ago only 4 processors engaged in social-environmental reporting. Now we have the majority of our members representing more than 100 plants." UNICA's CSR team also offered courses and leadership development programs for processors interested in adding CSR to their strategic initiatives. Exhibit 12 shows the major CSR projects initiated by UNICA and member participation.

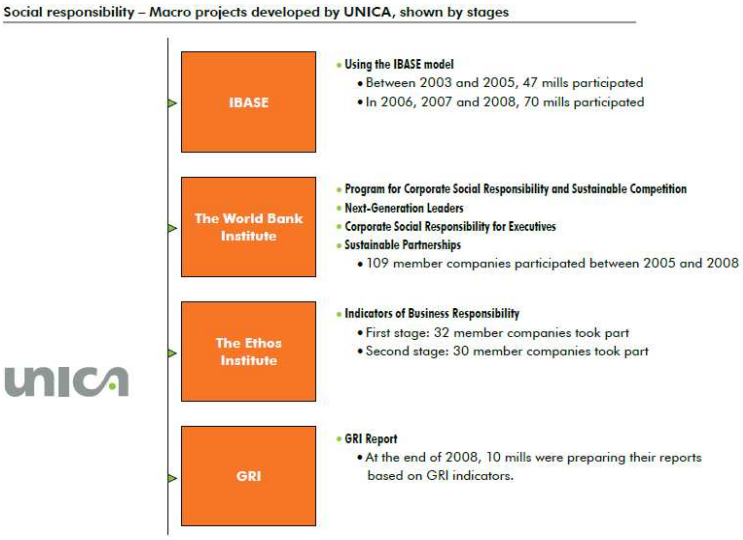


Exhibit 12. CSR Projects Developed by UNICA and Member Participation since 2003

Iza and Daniel used the information collected directly from processors to develop industry benchmarks for key social and environmental indicators. These indicators served as a management tool allowing processors to benchmark their sustainability performance against industry averages and best practices. Additionally, bankers, customers and the Brazilian society at large were increasingly demanding sustainable business practices. It was more and more difficult to get funding from major banks or do business with large customers if a processor did not follow sustainable practices. Iza believed that "when a sugarcane processor adopting sustainable practices signs a big supply contract with Coca Cola or Nestlé, this is a major incentive for industry rivals to follow."

The combined CSR efforts and projects of UNICA members were compiled in the industry sustainability report. In 2009 UNICA became the first Brazilian industry association to publish a sustainability report based on the guidelines developed by the Global Reporting Initiative (GRI), an international organization based in the Netherlands. The GRI was created to give sustainability reports levels of consistency equivalent to financial reports. In its 2008-09 sustainability report – meeting the requirements of GRI version G3, level B checked – UNICA described 618 CSR programs implemented by its members during that crop year. These programs in the areas of education, culture, health, quality of life and the environment required annual investments of R$ 158 million and benefited 480,000 people living in communities around sugarcane mills. UNICA's GRI-checked sustainability report served as an important communication tool, a subject to which we now turn.

Communication Efforts

When Marcos joined UNICA, the Brazilian sugarcane industry was under considerable pressure from external stakeholders. The industry, however, had a historical culture of not responding to outside criticisms leading to the perception that it lacked transparency. As the industry did not position itself relative to critics, misinformation or "myths" were widespread. Adhemar Altieri was recruited as UNICA's Communications Director in November 2007. Since then he built a team of 12 professionals in charge of communication, media relations, marketing, public relations and content management. His major goals were to provide information about the sugarcane industry to 100% of all requests, to correct erroneous information published or broadcast about the industry, and to collect and organize information about major industry advances that had been systematically overlooked by the media and other outside stakeholders.

To support this proactive communications strategy, UNICA invested in the internal production of information to outside stakeholders by a team of professionals led by Adhemar, a journalist by profession. The association newsletter – which used to be sent only to members – had more than 4,000 opt-in subscribers in 2009. About 1,000 individuals in Brazil and abroad followed UNICA on Twitter. The association website was completely overhauled in late 2007 to provide updated industry information both in Portuguese and in English and since then visits increased three-fold. The investments in industry communication also led to an increase in UNICA's presence in seminars, including the Ethanol Summit, which in 2009 attracted more than 3,000 participants.

In 2009 UNICA also launched the AGORA Project – a communication effort with 2010 budget of R$3.2 million funded by UNICA, Orplana (an association of sugarcane producers) and several

other industry participants including Monsanto, BASF, Dedini, SEW Eurodrive, Amyris, FMC and BP Biofuels. AGORA is a marketing and communication project focusing on the benefits of ethanol as a green and sustainable source of energy as the main message. Three main groups were initially targeted: consumers, the government and public elementary schools.

Is UNICA's Model Delivering Sustainability?

As the airplane approached the São Paulo international airport, Marcos pondered about the progress of his first three years at UNICA. The organization had engaged with governments and stakeholders outside Brazil and also developed a unique sustainability model in Brazil. This model was based on a partnership between the public and private sectors that introduced incentives for the adoption of sustainable practices such as the Green Protocol. These protocols were not coercive but provided incentives for voluntary adoption by industry participants. It had also made headways in informing the policy debate regarding renewable fuel use in developed countries. The EPA decision to recognize sugarcane ethanol as an "advanced" biofuel under the RFS was an important outcome. The recognition in California as a low carbon fuel created an export opportunity to a state that leads the world in environmental policy. UNICA's communication efforts also started to pay off in Brazil and abroad – it was now regarded as a more transparent organization and a reliable source of industry information. Perhaps more importantly, industry participants in Brazil followed UNICA's leadership and embraced the sustainability agenda. For instance, several processors adopted their own GRI reports.

Notwithstanding these important accomplishments, Marcos recognized that much remained to be done in the future. The model adopted by UNICA was based on the leadership of a well-funded and professionally staffed industry association. UNICA deployed its financial and human resources focusing on public good initiatives that complemented the competencies and efforts of its members. UNICA was also unique in leading the sustainability debate in Brazil and also taking responsibility for connecting industry participants with outside stakeholders. But is the "UNICA model" effective in delivering sustainability? What are the pros and cons of this model? Marcos wondered what should be the role of an industry association such as UNICA in "building a sustainable bioenergy network" that is legitimate in the eyes of society.

At the same time that UNICA pursued its strategy focusing on competitiveness, sustainability and communication, the Brazilian sugarcane industry was going through dramatic structural change in 2010. Industry consolidation was gaining momentum with new M&A transactions announced almost on a weekly basis. The investment bank Itaú-BBA predicted that by 2015 the top-5 processors would increase their share from 25% to 40% of total industry capacity. Control over processing assets was quickly being shifted from family-owned, single-plant operations to multinational, diversified processors (such as Bunge and Dreyfus) and partnerships with big oil companies (such as Petrobras, Shell and BP). The Cosan-Shell joint venture signaled the emergence of a vertically integrated model with control of assets from sugarcane fields to ethanol pumps in service stations. Sugarcane production was rapidly expanding to areas outside São Paulo, UNICA's traditional influence territory. Should UNICA redesign its membership policy and governance structure to accommodate the conflicting interests of the new industry players? Perhaps more importantly, should it reassess its strategy or simply wind up? Marcos wondered if UNICA would remain relevant in light of these industry changes.

Appendix 1

Brazilian Ethanol: Good for America?

Brazil has been noted as a model for ethanol-fueled energy independence. But will the same strategies that worked for Brazil work for the U.S.? And how much would importing Brazilian ethanol help America?

Thanks to their government programs in the 1970s and 1980s, Brazil's ethanol industry has flourished. The country now runs all cars on a blend of at least 25 percent ethanol. Flex fuel cars, introduced in Brazil in 2003, have become more popular than ever. Brazil makes their ethanol from sugar cane, which can be harvested 200 days out of the year, and grows abundantly in Brazil's tropical climate. The labor required for this harvest, however, is extensive and poorly regulated.

Workers recruited to harvest sugar cane in Brazil are often victims of exploitation. With miniscule paychecks, they are forced to depend on food and shelter provided by the plantation, who they soon become indebted to. Trapped between backbreaking labor and piles of debt, they effectively become slaves. While slavery is against both international and Brazilian law, authorities have been unsuccessful in reigning in the culprits. Today, an estimated 25,000 to 40,000 men and women in Brazil are still subjected to forced labor, according to the International Labour Organization. In contrast, American ethanol is revitalizing our rural economy.

While cane sugar can be harvested for almost two-thirds of the year in Brazil, it must be processed at the ethanol plant within two days or else the sugar molecules deteriorate. Because most of America is unsuitable for growing sugar, our ethanol is primarily made from corn. While corn may be slightly less efficient for making ethanol than sugar is, it has one huge advantage – it can be stored for much longer periods before being made into ethanol. There are also plants being built in America right now which will be able to turn other materials, such as wood scrap, citrus rinds and other agricultural waste into ethanol, making it more efficient than ever.

The American ethanol industry out-produces many foreign suppliers in gasoline equivalence, including Saudi Arabia, Venezuela and Mexico. By using more homegrown ethanol, we can reduce our reliance on potentially volatile nations while strengthening our national security. Additionally, if all new vehicles sold in the U.S. were flex fuel, any blend of ethanol and gasoline could be used, giving consumers more choices and further reducing our need for foreign energy.

The U.S. has placed a tariff on imported ethanol to help foster our own energy independence and to offset a U.S. tax credit, called the blender's credit, that benefits foreign suppliers. Because energy is so important to our national security, the tariff on imported ethanol ensures that our own ethanol industry can continue to grow, innovate and keep creating much-needed jobs for Americans here at home. Why would we want to trade a dependence on foreign fuel with another? By using American ethanol, we never have to make that compromise.

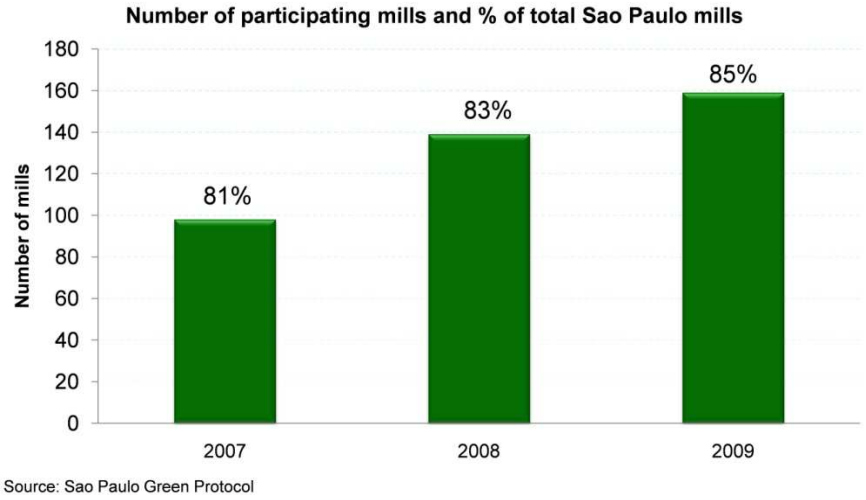
Ethanol is more than a fuel. It's a solution. Learn more at GrowthEnergy.org.

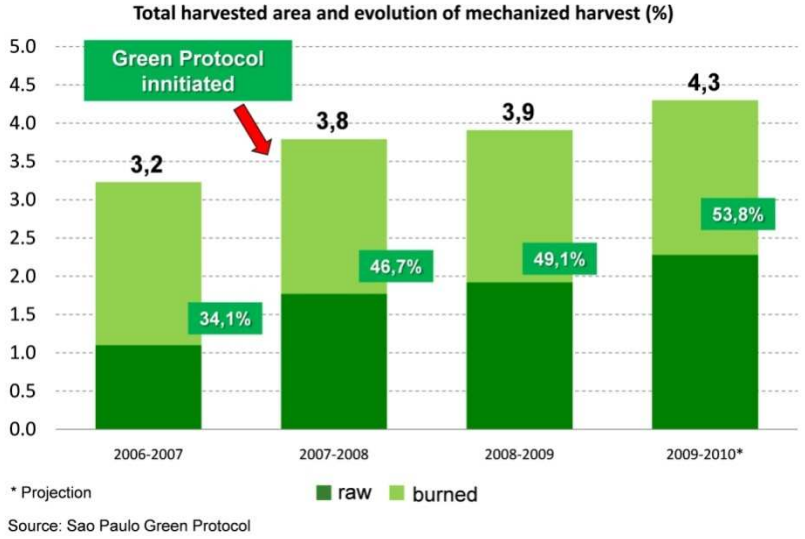
Exhibit 8. Attacks on the Brazilian Sugarcane Industry: A Sample
Source: www.growthenergy.org

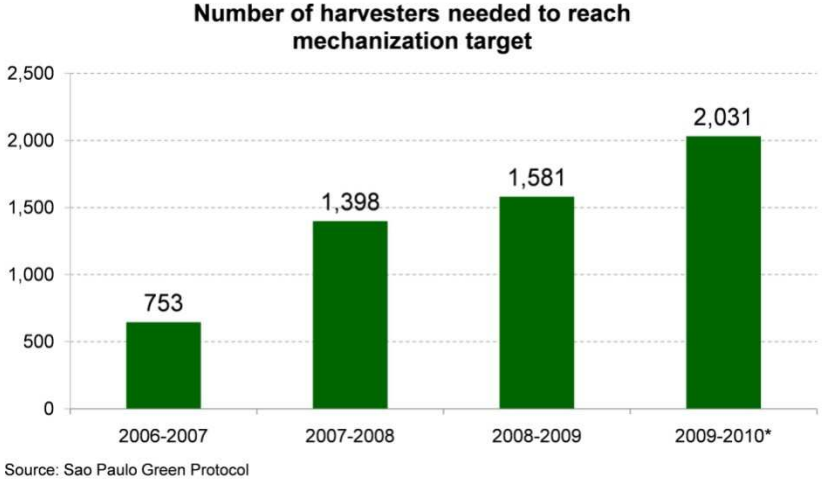
Appendix 2

Processors seeking the Green Protocol certificate need to follow these guidelines:
a. Anticipate the deadline for eliminating pre-harvest burning of sugarcane from 2021 to 2014, in fields with an inclination of up to 12%, accelerating the percentage of mechanized sugarcane harvesting from 50% to 70% by 2010.
b. Anticipate the deadline for eliminating pre-harvest burning of sugarcane from 2031 to 2017, in fields with inclination above 12%, accelerating the percentage of mechanized sugarcane harvesting from 10% to 30% by 2010.
c. Pre-harvest sugarcane burning is not allowed in expansion areas.
d. Take the necessary actions to ensure that cane straw burning or of any other sugarcane byproduct does not occur.
e. Protect riverside forests in sugarcane production areas given their importance in preserving the environment and protecting biodiversity.
f. Protect river or stream headwaters in sugarcane production areas recovering the surrounding vegetation.
g. Implement a soil conservation plan including the control of erosion and surface runoff.
h. Implement a water conservation plan favoring the adequate functioning of the hydrologic cycle, including a water quality control program and the reuse of water utilized in industrial processes.
i. Adopt good practices in the disposal of agrochemical containers by conducting triple wash, correct storage, adequate labor training and mandatory use of individual protection equipment.
j. Adopt good practices to minimize atmospheric pollution from industrial processes and assure adequate recycling and reuse of the residues generated in sugar and ethanol production.

Exhibit 10. Green Protocol: Certification Criteria
Source: Secretary of Agriculture, São Paulo State (http://www.ambiente.sp.gov.br).







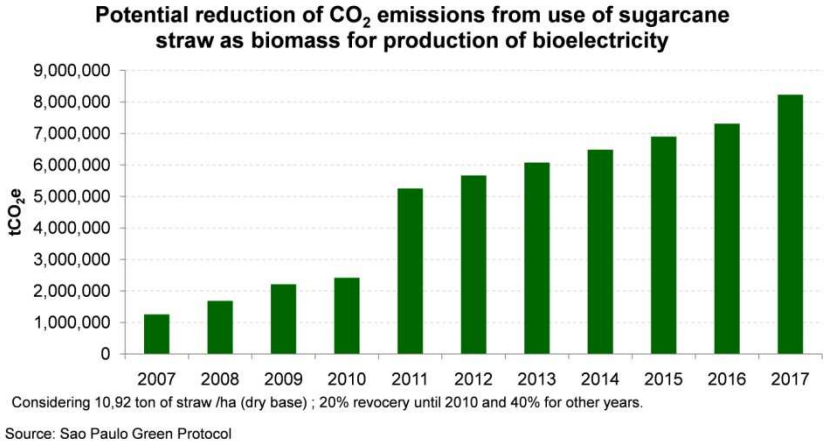


Exhibit 11. Green Protocol Statistics
Source: UNICA

